REMARKS

Reconsideration and allowance are respectfully requested in view of the following remarks.

By this amendment, claims 1, 2, 4-8, 10-13 and 15-23 are amended. No new matter has been added. Accordingly, claims 1-23 are pending in the present application.

Claims 1-23 are rejected under 35 USC 102(e) or alternatively under 35 U.S.C. §103(a), as being allegedly unpatentable over US 2004/0070782, hereinafter Mihira. This rejection is traversed as follows.

An image processing apparatus has a hierarchical architecture with a device layer (hardware resource) as the bottommost layer, a control layer controlling the device layer, and one or more application programs in an application group as the topmost layer. According to Applicants' exemplary embodiments, an image processing apparatus further includes an external API program having an external API for providing functionality of a control layer of the image processing apparatus to an external source, such as a PC, bypassing the one or more application programs in the application group of the image processing apparatus.

Referring to Fig. 1 of the present application, the control layer 20 includes a kernel 21, an Image Job Controller (IJC) module 22 for controlling operations of each device, an Input-Output interface module (IO) 23 for controlling communications with an external device, and IO/IJC API 24. The application layer 30 includes application program 31-35 and external API program 36 in the application layer, each of which makes an access to the IO/IJC API 24 in order to drive the devices. The external API application 36 according to Applicants' exemplary embodiments is a program for

controlling operations of each device according to a request relating to image processing received from an external device.

According to the present disclosure, in addition to the IO/IJC API 24 which is a collection of functions callable by the application programs stored in the MFP, the external API 361 is provided so that functionality of the control layer 20 is available to an external device, without going through the application programs 31-35. In other words, a developer of an external program can call the functions in the external API 361 to have direct access to the functionality of the control layer 20. According to Applicants' exemplary embodiments, a developer of an external program does not need to call other any of the application programs 31-35 to gain access to the functionality of the control layer 20. As such, the external API 361 is released publicly to external users (for example, software developers) in advance, so that the external users are able to develop software for accessing functionality of the control layer 20. It is submitted that the present invention is not limited to the above-mentioned exemplary embodiments.

For clarification, claim 1 is amended to recite an image processing apparatus, wherein

> the control layer includes a first API for receiving, with use of a predefined function, a first request relating to image processing from the external API program and a second request relating to image processing from the one or more application programs, and controls, on receiving either of the first and second requests, the hardware resource to perform image processing based on the received request, and
> the external API program includes a second API for receiving a third request relating to image processing from an external source, converts the received third request to a command supported by the first API, and passes the command as the first request to the control layer, bypassing the one or more application programs of the application group stored in the application layer;

      wherein commands, parameters, and syntax for controlling
the hardware resource are released to the public for incorporation
by external users into software supported by the second API.

Mihira does not disclose each feature of claim 1. Referring to Fig. 1 of Mihira, a composite machine includes an application layer 5, a platform 6, and hardware resources, such as a plotter 11 and a scanner 12. The application layer 5 includes various software applications, such as a printer application 21 for a printing function, and a copy application 22 for a copying function, a WEB page application 25 for a WEB page function, a SOAP communication application 26 for a simple object access protocol (SOAP) communication function, a sharing function layer 7 including at least one shared function, and a wrapping layer 8 having a WEB service function (WSF) 27 provided between the WEB page application 25, the SOAP communication application 26 and SFs 28.

In Mihira, the WSF 27 has an API 51 by which processing requests can be received from the WEB page application 25 and SOAP communication application 26. Further, the SF 28 has an API 52 by which processing requests can be received from the WSF 27. When receiving processing requests through the API 51 from the WEB page application 25 and SOAP communication application 26, the WSF 27 selects a respective one of the SFs 28 according to the processing requests. Then, the WSF 27 sends the processing requests thus received to the selected SFs 28 via the API 52. According to Mihira, upon receiving the processing requests via the API 52 , the SFs 28, calls other applications to execute processing in response to these requests.

Fig. 1 of Mihira illustrates two SFs 28 , one thereof acts as a document management service 123, and the other of the SFs 28 acts as a printing service 130.

Both document management service 123 and a printing service 130 are <u>application software</u> installed in the composite machine 1. See Mihira: paragraphs 0062 and 0090.

In Mihira, external applications, such as the web page application 25, can request processing via API 52 that is a collection of <u>functions that call various application programs in the application layer 5</u>. Mihira, however, does not disclose that the external applications can request processing using an API program that converts the request to a command supported by a control layer API, and passes the command as the first request to the control layer, <u>bypassing</u> the application programs of an application group stored in the application layer.

In other words, according to Mihira, it is impossible for external applications to access the functionality provided by the control layer without calling application programs in the application layer. In contrast, according to Applicants' exemplary embodiments, the external API program includes a second API for receiving request from an external source, converts the received third request to a command supported by a first API, and passes the command the control layer, bypassing the application programs of the application group stored in the application layer. Therefore, according to Applicants' exemplary embodiments, it is possible for external applications to access the functionality provided by the control layer using the second API, without going through the application programs of the application group stored in the application layer. Accordingly, Mihira fails to disclose a combination wherein "the external API program includes a second API for receiving a third request relating to image processing from an external source, converts the received third request to a command supported by the first API, and passes the

command as the first request to the control layer, bypassing the one or more application programs of the application group stored in the application layer," as recited in Applicants' claim 1.

In view of the foregoing, claim 1 is patentable. Claims 2-12, 18-21 and 23 are patentable for reasons similar as those for claim 1.

Claim 13 recites a combination wherein "the external API program includes a second API for receiving a third request relating to image processing from an external source, converts the received third request to a command supported by the first API, and passes the command to an appropriate one of the control layer , and the one or more application programs, depending on the requested processing, the command passed to the control layer serving as the first request."

As mentioned above, according to Mihira, upon receiving the processing requests via the API 52 , the SFs 28, call other applications to execute processing in response to these requests.

Mihira discloses passing the calls from the shared functions to the application programs. The reference, however, does not disclose passing the calls to an appropriate one of the control layer and the application programs. Therefore, Mihira fails to disclose the above-recited features of claim 13. Accordingly, claim 13 and its dependent claims 14-17 and 22 are patentable.

C O N C L U S I O N

From the foregoing, further and favorable action in the form of a Notice of Allowance is respectfully requested and such action is earnestly solicited.

In the event that there are any questions concerning this amendment, or the application in general, the Examiner is respectfully requested to telephone the undersigned so that prosecution of present application may be expedited.

Respectfully submitted,

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